

assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.

9. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.
10. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel at the facility shall be familiar with its contents.
11. The Regional Water Board will review this Order periodically and will revise requirements when necessary.

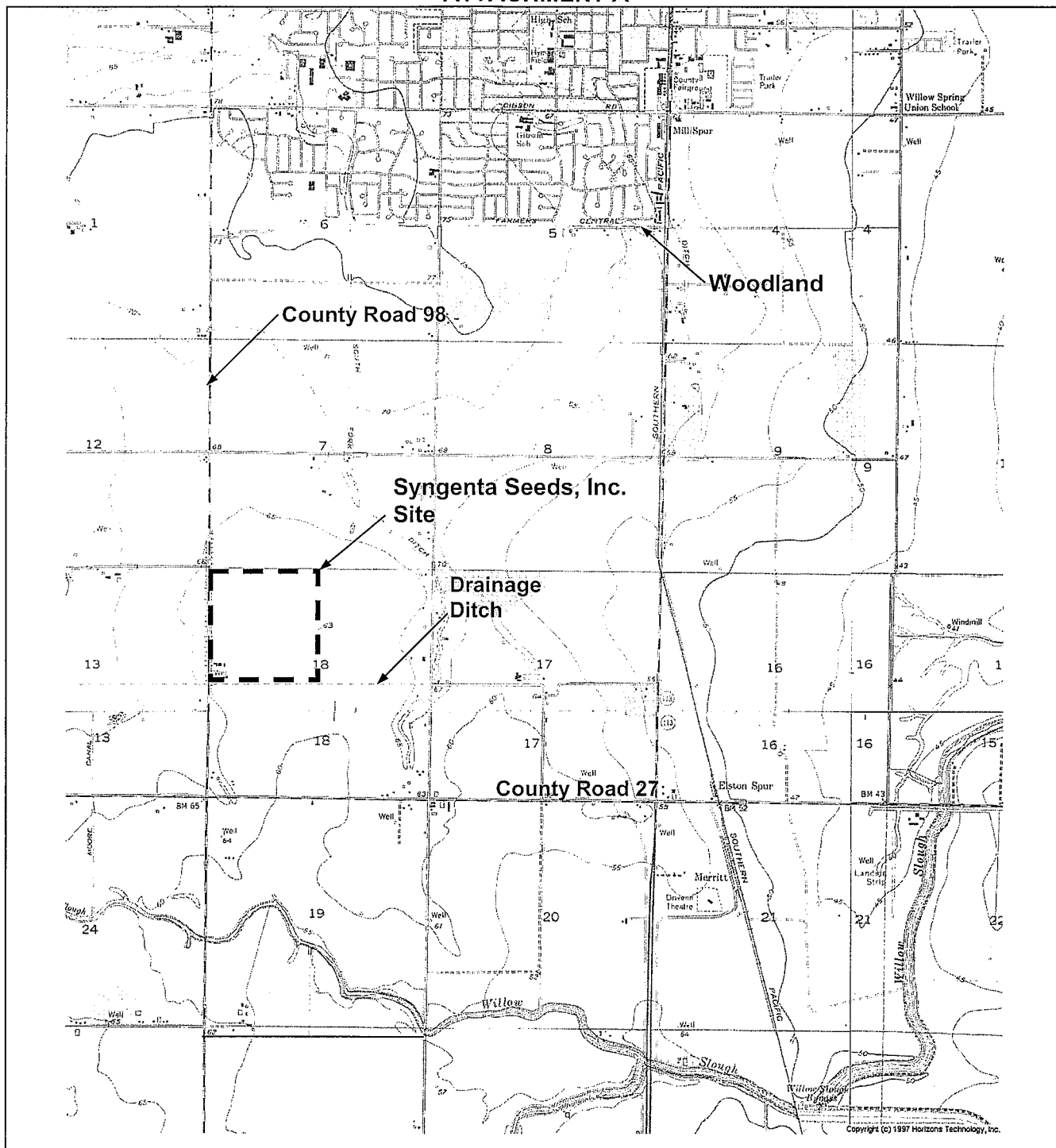
I, Pamela C. Creedon, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 23 October 2008.

PAMELA C. CREEDON, Executive Officer

AMENDED

ALO:11/04/2008

ATTACHMENT A



Drawing Reference:
USGS 7.5 minute
quad map. Woodland,
CA

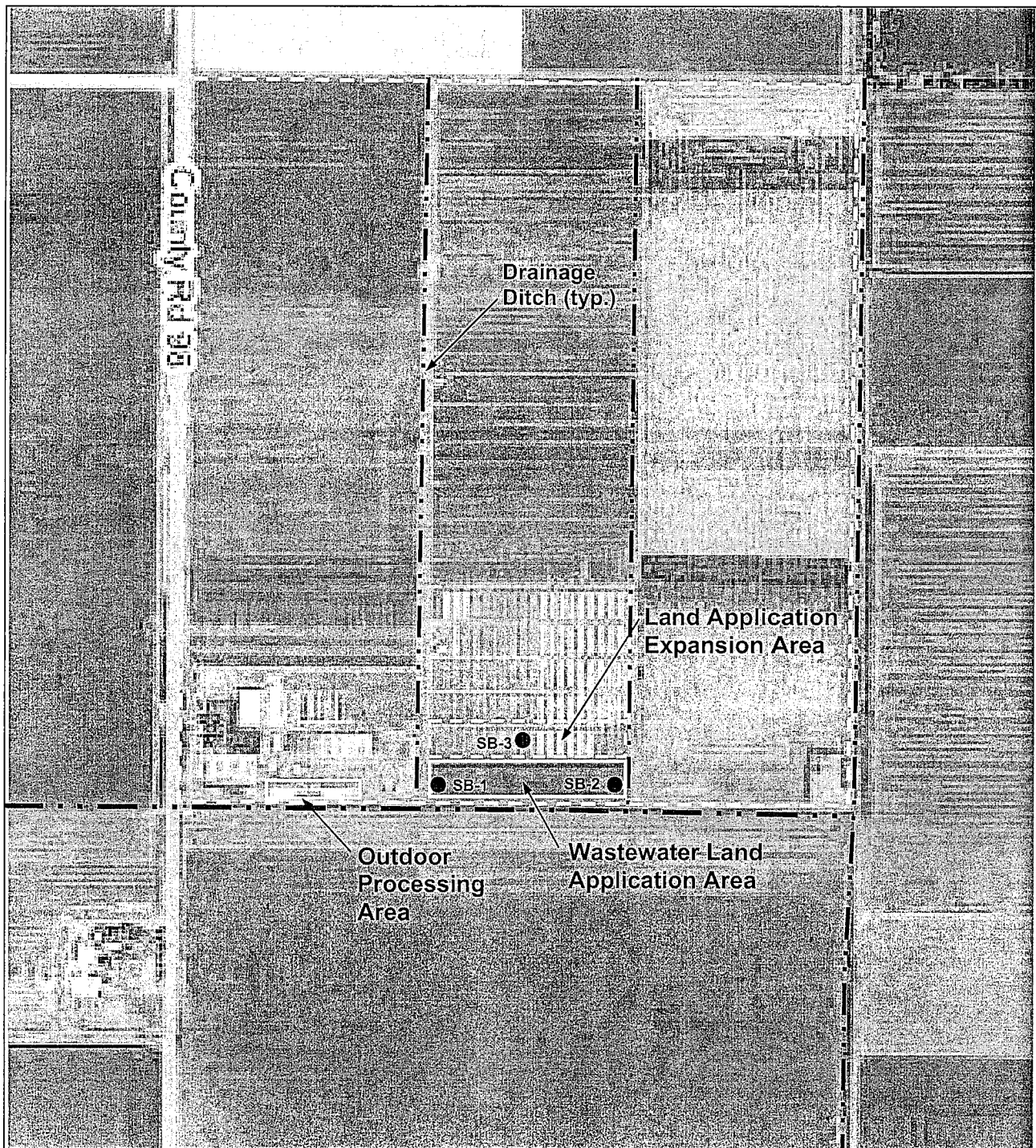
LOCATION MAP
SYNGENTA SEEDS, INC.
WOODLAND SEED PROCESSING FACILITY
YOLO COUNTY

ORDER NO. R5-2008-0158



Approx. Scale:
1" = 3,400'

ATTACHMENT B



Drawing Reference:
Google Maps, Report of
Waste Discharge

● Soil Boring Location

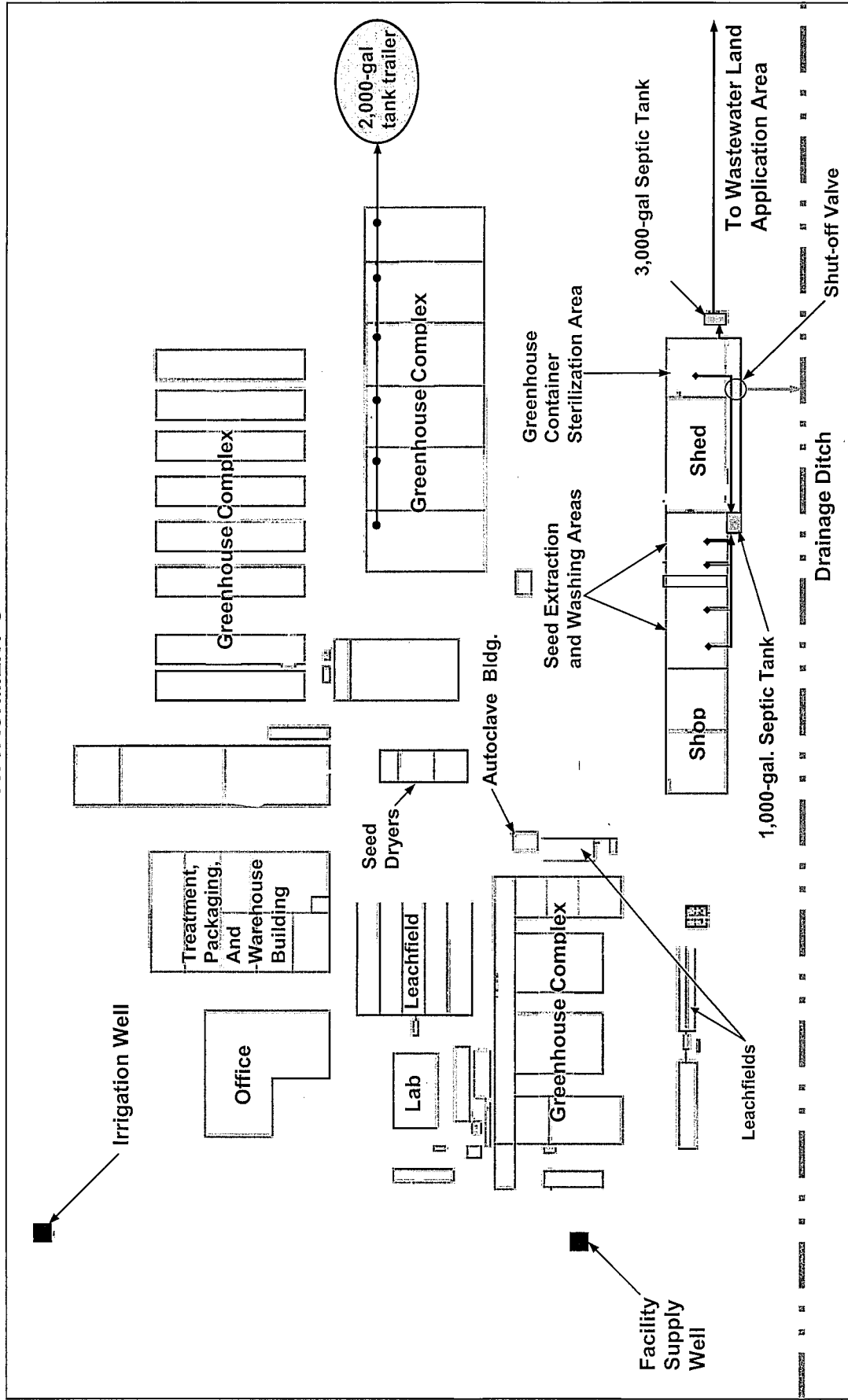
SITE PLAN
SYNGENTA SEEDS, INC.
WOODLAND SEED PROCESSING FACILITY
YOLO COUNTY

ORDER NO. R5-2008-0158



Approx. Scale:
1" = 550'

ATTACHMENT C



Drawing Reference:
2007 Annual Monitoring Report
Brown and Caldwell
17 December 2007

PROCESSING AREA PLAN
SYNGENTA SEEDS, INC.
WOODLAND SEED PROCESSING FACILITY
YOLO COUNTY

ORDER NO. R5-2008-0158

N
Approx. Scale:
1" = 90'

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2008-0158
FOR
SYNGENTA SEEDS, INC.
WOODLAND SEED PROCESSING FACILITY
YOLO COUNTY

The Discharger shall comply with this Monitoring and Reporting Program (MRP), which describes requirements for monitoring process wastewater, supplemental irrigation water, waste solids, and land application areas. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form. Field test instruments (such as those used to measure pH and dissolved oxygen) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are field-calibrated prior to each monitoring event;
3. The instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of the MRP.

WASTEWATER MONITORING

Wastewater samples shall be collected at a point in the system downstream of the screen and upstream of the wastewater land application area. Sampling is not required during periods when no wastewater is discharged to the land application area. Grab samples collected from a pipeline or sump pit will be considered representative. At a minimum, the Discharger shall monitor the wastewater as follows:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
pH	pH units	Grab	Weekly	Monthly
Electrical Conductivity	umhos/cm	Grab	Weekly	Monthly
Total Dissolved Solids	mg/L	Grab	Weekly	Monthly
Fixed Dissolved Solids	mg/L	Grab	Weekly	Monthly
BOD ₅ ¹	mg/L	Grab	Weekly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Weekly	Monthly
Nitrate Nitrogen	mg/L	Grab	Weekly	Monthly
Ammonia Nitrogen	mg/L	Grab	Weekly	Monthly
Sodium	mg/L	Grab	Monthly	Monthly

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Chloride	mg/L	Grab	Monthly	Monthly

¹ 5-day, 20°C Biochemical Oxygen Demand.

SUPPLEMENTAL IRRIGATION WATER MONITORING

If supplemental fresh water is used to irrigate the wastewater land application area, the Discharger shall monitor the supplemental irrigation supply water. Sampling is not required during periods when no water is discharged to the land application areas. Samples of supplemental irrigation water may be collected at any point between the wellhead and the wastewater land application area. Grab samples will be considered representative. At a minimum, the Discharger shall monitor the supplemental irrigation supply water as follows:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
pH	pH units	Grab	Monthly	Monthly
Electrical Conductivity	umhos/cm	Grab	Monthly	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
Fixed Dissolved Solids	mg/L	Grab	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Monthly	Monthly
Nitrate Nitrogen	mg/L	Grab	Monthly	Monthly
Sodium	mg/L	Grab	Monthly	Monthly
Chloride	mg/L	Grab	Monthly	Monthly

FLOW MONITORING

The Discharger shall monitor wastewater and supplemental irrigation water flows as follows:

<u>Flow Source</u>	<u>Units</u>	<u>Type of Measurement</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
Daily subtotal to each irrigation field or check:	gpd	Meter	Daily ¹	Monthly
Wastewater	and	Observation/		
Supplemental irrigation water	inches	Calculation		
Total water				

¹ Calculated based on total daily flows, flow rates, checks in use, and length of set time for each check.

WASTE SOLIDS MONITORING

Samples of solids removed from the processing area and wastewater screen shall be collected just prior to discharge to the solids application area. Sampling is not required during periods when no solids are discharged to the land application area. Grab samples collected from a bin or transport vehicle will be considered representative. At a minimum, the Discharger shall monitor the solids as follows:

Constituent/Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Total weight discharged	tons ¹	Calculated	Daily	Monthly
Total solids	mg/Kg	Grab	Monthly	Monthly
Total organic carbon	mg/Kg ²	Grab	Monthly	Monthly
Total nitrogen	mg/Kg ²	Grab	Monthly	Monthly

¹ May be estimated based on volume (cubic yards) and typical wet density, if known. Report as both wet weight and dry weight.

² Results shall be reported on both a wet weight and dry weight basis.

WASTEWATER LAND APPLICATION AREA MONITORING

A. Daily Field Inspections

The Discharger shall inspect the wastewater land application area at least once daily prior to and during irrigation events, and observations from those inspections shall be documented for inclusion in the monthly monitoring reports. The following items shall be documented for each check or field to be irrigated on that day:

1. Runoff control berm condition;
2. Condition of each sprinkler head and flow control valve;
3. Soil saturation, ponding, and evidence of soil clogging;
4. Potential runoff to off-site areas and/or surface water;
5. Accumulation of organic solids at soil surface;
6. Odors that have the potential to be objectionable at or beyond the property boundary; and
7. Insects.

A copy of entries made in the log during each month shall be submitted as part of the Monthly Monitoring Report.

B. Routine Monitoring

The Discharger shall perform the following routine monitoring and loading calculations during all months when land application of wastewater occurs, and shall present the data in the Monthly and Annual Monitoring Reports.

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Precipitation	0.1 in.	Rain Gauge ¹	Daily	Monthly, Annually
Irrigation checks receiving wastewater	--	Observation	Daily	Monthly, Annually
Hydraulic loading rate: Wastewater Fresh water Total	Gallons and inches	Calculated ²	Daily	Monthly, Annually
BOD ₅ loading rate Peak daily Cycle average	lb/ac/day	Calculated ^{2,3}	Daily	Monthly, Annually
Cumulative nitrogen loading rate Wastewater Fresh water Total	lb/ac	Calculated ^{2,4}	Daily	Monthly, Annually
Cumulative (to date) flow-weighted electrical conductivity (wastewater and fresh water)	mg/L	Calculated ^{2,4}	Monthly	Monthly, Annually

¹ Data obtained from the nearest National Weather Service rain gauge is acceptable.

² Rate shall be calculated for each irrigation check.

³ BOD₅ shall be calculated using the daily applied volume of wastewater, actual application area, and the average of the three most recent BOD₅ results.

⁴ Total nitrogen and TDS loading rates shall be calculated as a flow-weighted average using the applied volume of wastewater, actual application area, and effluent monitoring results.

⁵ Loading rates for supplemental nitrogen shall be calculated using the actual load and the application area.

WASTE SOLIDS LAND APPLICATION AREA MONITORING

A. Daily Field Inspections

The Discharger shall inspect the waste solids land application area at least once daily prior to and during land application, and observations from those inspections shall be documented for

inclusion in the monthly monitoring reports. The following items shall be documented for each check or field to be used on that day:

1. Accumulation of organic solids at soil surface;
2. Odors that have the potential to be objectionable at or beyond the property boundary; and
3. Insects.

A copy of entries made in the log during each month shall be submitted as part of the Monthly Monitoring Report.

B. Routine Monitoring

The Discharger shall perform the following routine monitoring and loading calculations during all months when land application of solids occurs, and shall present the data in the Monthly and Annual Monitoring Reports.

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Fields receiving solids (depict on scaled map)	--	Observation	Daily	Monthly, Annually
Application rate:				
Wet	tn/ac, inches	Calculated ¹	Daily	Monthly, Annually
Dry	tn/ac			
Cumulative nitrogen loading rate	lb/ac	Calculated ¹	Daily	Monthly, Annually

¹ Rates shall be calculated for each field.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g. effluent, groundwater), sampling location, and the reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported in the next scheduled monitoring report.

A. Monthly Monitoring Reports

Monthly reports shall be submitted to the Regional Board on the **1st day of the second month following sampling** (i.e., the January report is due by 1 March). Monthly Monitoring

Reports shall be submitted regardless of whether there is any process wastewater generated. At a minimum, the reports shall include:

1. Results of wastewater, supplemental irrigation water, waste solids, flow, and all land application area monitoring. Data shall be presented in tabular format.
2. Daily precipitation data in tabular form accompanied by starting and ending dates of irrigation for each field or check.
3. Daily field inspection reports.
4. A comparison of monitoring data to the discharge specifications and applicable limitations and an explanation of any violation of those requirements.
5. When requested by staff, copies of laboratory analytical report(s).
6. Calibration log(s) verifying calibration of any field monitoring instruments (e.g., DO, pH, and EC meters) used to obtain data.
7. Daily discharge volumes and acres irrigated shall be tabulated. The report shall include a discussion of the discharge volumes and irrigation practices used (water source, method of application, application period/duration, drying times, etc.) for each check or group of checks utilized during the month. Hydraulic loading rates (inches/acre/month) shall be calculated.
8. Maximum daily BOD₅ loading rates (lbs/acre/day) shall be calculated for each irrigation check using the total volume applied on the day of application, estimated application area, and a running average of the three most recent results of BOD₅ for the applicable source water, which also shall be reported along with supporting calculations. Cycle average BOD₅ loading rates shall be calculated using the total volume applied on the day of application, the number of days between applications, the total application period, application area, and a running average of the three most recent results of BOD₅ for the wastewater.
9. Total nitrogen loading rates (lbs/acre/month) shall be calculated for each irrigation check on monthly basis using the daily applied volume of wastewater, daily application area, and the most recent monitoring results, which shall also be reported along with supporting calculations.
10. Nitrogen loading rates for other sources (i.e., fertilizers) shall be calculated for each irrigation check on a monthly basis using the daily applied load and the estimated daily application area.
11. Cumulative nitrogen loading rates for each irrigation check for the calendar year to date shall be calculated as a running total of monthly loadings to date from all sources.

12. Flow-weighted average electrical conductivity and chloride concentration shall be calculated based on year-to-date flow, wastewater, and supplemental irrigation water monitoring results.

B. Annual Monitoring Report

An Annual Report shall be submitted to the Regional Board by **1 February** each year. The Annual Report shall include the following:

1. Tabular and graphical summaries of historical monthly total loading rates for water (hydraulic loading in gallons and inches), BOD, and total nitrogen solids applied to the wastewater land application area.
2. The flow-weighted average electrical conductivity and chloride concentration of the wastewater shall be calculated based on measured daily flows; and wastewater, and supplemental irrigation water monitoring results for the year.
3. For each violation of the Effluent Limitations of this Order, the report shall describe in detail the nature of the violation, date(s) of occurrence, cause(s), mitigation or control measures taken to prevent or stop the violation, and additional operational or facility modifications that will be made to ensure that the violation does not occur in the following year.
4. A comprehensive evaluation of the effectiveness of the past year's wastewater application operation in terms of odor control, including consideration of application management practices (i.e.: waste constituent and hydraulic loadings, application cycles, drying times, and cropping practices), soil profile monitoring data and groundwater monitoring data.
5. A narrative description of solids disposal practices, including identification of the fields where solids were applied, the total nitrogen applied to each field during the year, typical application depths and incorporation practices, any nuisance conditions that occurred, and corrective actions taken to remedy nuisance conditions, if any.
6. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.
7. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the certification statement by the

MONITORING AND REPORTING PROGRAM NO. R5-2008-0158
SYNGENTA SEEDS, INC.
WOODLAND SEED PROCESSING FACILITY
YOLO COUNTY

-8-

Discharger or the Discharger's authorized agent, as described in the Standard Provisions
General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

23 October 2008

(date)

ALO:11/4/2008

INFORMATION SHEET

ORDER NO. R5-2008-0158
SYNGENTA SEEDS, INC.
WOODLAND SEED PROCESSING FACILITY
YOLO COUNTY

Syngenta Seeds, Inc. operates a seed crop production and seed washing facility on a 160-acre parcel 1.5 miles south of Woodland. In April 2004, the Yolo County Environmental Health Department discovered that Syngenta Seeds, Inc. was discharging process wastewater to a drainage ditch that flows to Willow Slough, and referred the Discharger to the Regional Water Board to obtain WDRs. The facility has been in operation since 1972, but information about historical ownership and waste management practices is not available. The current owner (the Discharger) had been discharging process wastewater to leachfields and an adjacent drainage ditch that drains to Willow Slough for an unknown time. The Discharger ceased the discharge to surface waters on request and began land-applying wastewater in accordance with an interim operations plan submitted in June 2004 pending adoption of WDRs.

Since then, the Discharger has consolidated outdoor processing into a single area, installed a finer wastewater screen, expanded the wastewater land application area, installed a sprinkler irrigation system, and planted perennial grass in the wastewater land application area. These changes have reduced waste constituent loadings, and there have been no complaints about the Discharger's operations since the original referral by Yolo County.

The Discharger grows peppers, tomatoes, watermelons, cantaloupe, and squash on approximately 130 acres, including several greenhouses. Beginning in July and continuing intermittently through October, the crops are harvested and processed to remove their seeds. The amount of fruit processed each year has varied from 88 to 173 tons for the last three years.

Seed processing takes place outdoors on concrete slabs that drain to a septic tank. Process wastewater is screened to remove solids before it is pumped to the wastewater land application area sprinkler system. The total annual wastewater volume ranged from 197,000 to 400,000 gallons per year for the last four years. Screened solids are collected in a bin for land application with the other residual solids removed during processing.

The greenhouses have evaporative cooling systems. Most of them are closed loop systems with no waste discharge. However, six greenhouses generate small volumes of saline water that is drained from the system to reduce salt accumulation on the cooling pads. The greenhouse cooling system wastewater is commingled with the process wastewater and applied to land.

The combined process and greenhouse wastewater is typically high in degradable organics, nitrogen, and salinity. Although the high salinity is due in part to salts present in the process water supply and the fruit, various saline chemicals are used to aid in processing, treat the seeds to control microbial diseases, and sterilize seedling trays used in the greenhouses.

The 1.6-acre wastewater land application area is divided into seven irrigation checks. Manual valves are used to control the flow to each check. The land application area was recently planted with perennial rye grass, which is periodically mowed. The cuttings are typically not removed. The Discharger proposes a flow limit of 493,000 gallons per year for the combined

process and greenhouse wastewater, which is equivalent to 11 inches of water per year. The Discharger adds supplemental fresh water as needed to sustain the grass.

Based on information presented in the Report of Waste Discharge (RWD) the estimated cycle average BOD loading is approximately 50 pounds per acre per day, and the estimated peak (or instantaneous maximum) BOD loading is approximately 396 pounds per acre per day. However, due to highly variable daily flows and BOD concentrations, actual BOD loadings in 2007 were as high as 70 pounds per acre per day as a cycle average, and 1,100 pounds per acre per day as a peak daily rate.

A cycle average loading of 100 lb/ac/day and a peak daily loading equal to that value multiplied by the cycle time in days should be sufficient to prevent nuisance and protect groundwater quality. Based on the cycle time proposed in the RWD, the peak daily loading rate should not exceed 800 lb/ac/day. A high peak daily loading rate may not necessarily cause nuisance conditions, particularly if it occurs infrequently and is not the result of organic solids accumulation on the ground surface or sustained ponding of wastewater in the land application area. The Discharger may be able to improve control of the peak daily loading rate by correlating historical BOD concentrations for the type of fruit processed to determine when lower application volumes and shorter cycles are needed to reduce the peak BOD loading.

The estimated total nitrogen load to the wastewater land application area is 280 pounds per acre per year, and approximately 224 pounds per acre per year would be plant available. Typical nitrogen requirements for turf grasses are 225 to 260 pounds per acre per year, so the proposed nitrogen loading rates are not excessive.

The Discharger has designated a land application expansion area to be used if needed to comply with the loading rate limitations of this Order. If wastewater concentrations are similar to previous years, full expansion up to 3.0 acres of land application area should reduce the BOD loading rate to 26 pounds per acre per day as a cycle average, and 634 pounds per acre per day as a peak daily rate. The water loading rate would be about 6 inches per year, and the nitrogen loading rate would be similarly reduced.

Approximately 190 tons of residual fruit solids are applied to the Discharger's cropland each year. A manure spreader is used to apply the solids to the fields, and they are disked within several days to incorporate the waste. The RWD did not provide characterization data for this waste, but it is expected to contain high concentrations of readily degradable organic matter and nitrogen. There is currently no specific land application area or rotation schedule for this discharge, and the RWD did not provide any information regarding typical solids loading rates. Because of the potential for nuisance conditions associated with readily degradable organic matter on the ground surface and groundwater degradation associated with the nitrogen content of this waste, this Order requires that the Discharger submit a *Solids Management Plan* for review and approval.

Domestic wastewater generated at the facility is discharged to a septic system permitted by the Yolo County Environmental Health Department. Three small reverse osmosis systems are used

INFORMATION SHEET
ORDER NO.
SYNGENTA SEEDS, INC.
WOODLAND SEED PROCESSING FACILITY
YOLO COUNTY

- 3 -

to treat water supplied to the office and laboratory. The reverse osmosis brine and blowdown from a small boiler are also discharged to the septic system. No chemical analyses are performed in the laboratory.

After the processing season ends, the processing slabs, sumps, and pipelines are flushed with clean water. This rinse water is discharged to the land application area. Storm water runoff from the outdoor processing areas is then allowed to drain to a main drainage ditch along the southern property boundary.

Because the Discharger uses sprinkler irrigation on the wastewater land application area and drip irrigation in the fields and greenhouses, there is essentially no tailwater discharge from the site. Storm water runoff from the entire site drains to north-south trending ditches that discharge to the main drainage ditch. This ditch also receives storm water runoff and tailwater runoff from nearby farms.

There are no shallow groundwater monitoring wells at the site, but the Discharger completed a limited assessment of groundwater quality beneath the current wastewater land application area in September 2006. Groundwater may be found at approximately 25 feet below the ground surface. Groundwater samples obtained in 2006 indicate that groundwater beneath the current land application area exceeds water quality objectives for electrical conductivity, dissolved solids, nitrate nitrogen, and sodium. The limited groundwater data do not conclusively demonstrate the source of the apparently poor shallow groundwater quality at the site. It may be naturally occurring, the result of agricultural practices, the result of the previous discharges, or some combination of the three. The land discharge at the current land application site has been ongoing for only four years at relatively low water application rates. Based on the limited volume of the discharge, the seasonal nature of the discharge, the character of the waste, and site-specific soil and groundwater conditions, discharge has minimal potential to degrade groundwater quality if properly managed. Therefore, groundwater monitoring is not necessary unless the discharge changes significantly, the Discharger fails to achieve its salinity reduction goals, or new information regarding the threat to groundwater quality becomes available. This Order includes effluent limitations that limit the wastewater to current levels and requires that the Discharger develop and implement a salinity minimization plan.

Surface water drainage is to Willow Slough, which is tributary to the Yolo Bypass.

ALO:11/04/08